

CLAIMS:

1. A method for activating an implantable drug delivery system, the method comprising:

5 maintaining a timer to time a lockout interval; and
rejecting a user request to activate an implantable drug delivery system prior to expiration of the lockout interval.

10 2. The method of claim 1, further comprising activating the implantable drug delivery system in response to a user request received after expiration of the lockout interval.

15 3. The method of claim 2, further comprising restarting the lockout interval upon activating the drug delivery system.

4. The method of claim 1, wherein maintaining a timer comprises setting the lockout interval in response to user input.

20 5. The method of claim 1, wherein maintaining a timer comprises maintaining a timer within an external activation device, the method further comprising:

receiving an input signal indicating the user request upon activation of a button of the external activation device; and

communicating an activation signal from the external activation device to the implantable drug delivery system in response to the input signal when the input signal is received after expiration of the lockout interval.

25 6. The method of claim 5, further comprises outputting an error indication from the external activation device when the input signal is received prior to the expiration of the lockout interval.

7. The method of claim 6, wherein outputting an error indication comprises illuminating a light emitting diode (LED) of the external activation device.

5 8. The method of claim 6, wherein outputting an error indication comprises

outputting an audible tone from the external activation device.

9. The method of claim 1, wherein maintaining a time comprises maintaining a timer within the implantable drug delivery system, the method further comprising:

10 receiving an input signal indicating the user request upon activation of a button of an external activation device; and

communicating an activation signal from the external activation device to the implantable drug delivery system in response to the input signal.

15 10. The method of claim 9, wherein reject a user request comprises outputting an error signal from the implantable drug delivery system to the external activation device when the activation signal is received prior to expiration of the lockout interval.

11. The method of claim 10, further comprises outputting an error indication from the external activation device in response to the error signal.

20 12. The method of claim 11, wherein outputting an error indication comprises illuminating a light emitting diode (LED) of the external activation device.

13. The method of claim 11, wherein outputting an error indication comprises 25 outputting an audible tone from the external activation device.

14. The method of claim 2, wherein activating the implantable drug delivery system comprises dispensing a bolus of a drug.

30 15. The method of claim 2, wherein activating the implantable drug delivery system comprises:

5 maintaining an bolus amount of the drug to dispense; and
adjusting the bolus amount in response to the user request.

16. The method of claim 2, wherein activating the implantable drug delivery system comprises adjusting a flow rate of the implantable drug delivery system in response to the user request.

10 17. A method for activating an implantable drug delivery system, the method comprising:

initiating a timer to time a lockout interval upon issuing a first dosage of a drug an implantable drug delivery system;

receiving an input signal indicating a user request for a second dosage of the drug from the implantable drug delivery system;

15 communicating an activation signal from an external activation device to the implantable drug delivery system in response to the input signal when the input signal is received after expiration of the lockout interval; and

rejecting the user request for the second dosage of the drug when the input signal is received prior to expiration of the lockout interval.

20 18. The method of claim 17, further comprising programmatically setting a lockout interval.

19. The method of claim 17, further comprising:

25 receiving a response communication from the implantable drug delivery system;
and

restarting the timer when the response communication indicates the implantable drug delivery system issued the second dosage of the drug.

30 20. The method of claim 17, wherein rejecting the user request comprises outputting an error indication from the external activation device.

21. The method of claim 20, wherein outputting an error indication comprises illuminating a light emitting diode (LED) of the external activation device.

5 22. A computer-readable medium comprising instructions for causing a programmable processor to:

maintain a timer to time a lockout interval; and

reject a user request to activate an implantable drug delivery system prior to expiration of the lockout interval.

10 23. The medium of claim 22, wherein the instructions the programmable processor to maintain a software time.

15 24. The medium of claim 22, wherein the instructions the programmable processor to maintain a hardware time.

20 25. The medium of claim 22, wherein the instructions further cause the programmable processor to reset the lockout interval upon activating the drug delivery system.

25 26. The medium of claim 22, wherein the instructions further causing the programmable processor to set the lockout interval in response to user input.

27. The medium of claim 22, wherein the instructions cause the programmable processor to maintain a timer within an external activation device, and wherein the instructions further cause the programmable processor to:

receive an input signal indicating the user request upon activation of a button of the external activation device; and

communicate an activation signal from the external activation device to the implantable drug delivery system in response to the input signal when the input signal is received after expiration of the lockout interval.

28. The medium of claim 27, the instructions further causing the programmable processor to output an error indication from the external activation device when the input signal is received prior to the expiration of the lockout interval.

5 29. The medium of claim 22, wherein the instructions cause the programmable processor to maintain the timer within the implantable drug delivery systems, and wherein the instructions further cause the programmable processor to:

10 receive an activation signal from the external activation device; and
 output an error signal from the implantable drug delivery system to the external activation device when the activation signal is received prior to expiration of the lockout interval

15 30. An apparatus comprising:
 an input/output (I/O) device;
 a controller coupled to the I/O device to receive a user request to activate an implantable drug delivery system; and
 a timer managed by the controller to time a lockout interval, wherein the controller outputs an activation signal to activate the implantable drug delivery system when the user request is received after expiration of the lockout interval.

20 31. The apparatus of claim 30, wherein the controller rejects the user request to activate the implantable drug delivery system when the user request is received prior to expiration of the lockout interval.

25 32. The apparatus of claim 30, wherein the controller outputs an error indication upon rejecting the request.

30 33. The apparatus of claim 30, further comprising a light emitting diode (LED), and wherein the controller illuminates the LED upon rejecting the request.

34. The apparatus of claim 30, wherein the controller restarts the time upon activating the drug delivery system.

5 35. The apparatus of claim 30, wherein the apparatus comprises an external activation device and further includes a telemetry unit to transmit the activation signal to the implantable drug delivery system.

10 36. The apparatus of claim 30, wherein the apparatus comprises the drug delivery system, and wherein the I/O device comprises a telemetry unit to receive a telemetric communication conveying the user request.

15 36. The apparatus of claim 30, wherein the timer comprises a software timer.

37. The apparatus of claim 30, wherein the timer comprises a hardware timer.

20 38. A system comprising:
an implantable drug delivery system; and
an activation unit operable by a user to request activation of the implantable drug delivery system.

39. The system of claim 38, wherein the activation unit includes a controller to reject a user request to activate the implantable drug delivery system prior to expiration of a lockout interval.

25 40. The system of claim 39, wherein the controller issues an activation signal to the implantable drug delivery system in response to a user request received after expiration of the lockout interval.

30 41. The system of claim 39, wherein the controller restarts the lockout interval upon activating the drug delivery system.

42. The system of claim 39, wherein the controller programmatically sets the lockout interval in response to user input.

5 43. The system of claim 39, wherein the controller outputs an error indication from the when the user request is received prior to the expiration of the lockout interval.

10 44. The system of claim 38, wherein the implantable drug delivery system dispenses a predetermined amount of drug upon activation, and wherein the implantable drug delivery system adjusts the bolus amount in response to the user request.

15 45. The system of claim 38, wherein the implantable drug delivery system adjusts a flow rate in response to the user request.

20 46. A system comprising:
means for initiating a timer to time a lockout interval upon issuance of a first dosage of a drug via an implantable drug delivery system;
means for receiving an input signal indicating a user request for a second dosage of the drug from the implantable drug delivery system;
means for communicating an activation signal from an external activation device to the implantable drug delivery system in response to the input signal when the input signal is received after expiration of the lockout interval; and
means for rejecting the user request for the second dosage of the drug when the input signal is received prior to expiration of the lockout interval.

25 47. The system of claim 46, further comprising means for programmatically setting a lockout interval.

30 48. The system of claim 46, further comprising:
means for receiving a response communication from the implantable drug delivery system; and

means for restarting the timer when the response communication indicates the implantable drug delivery system issued the second dosage of the drug.

49. The system of claim 46, further comprising means for outputting an error
5 indication from the external activation device.

50. A method for activating an implantable drug delivery system, the method comprising:

10 receiving a user request to activate an implantable drug delivery system;
communicating an activation signal from an external activation device to the
implantable drug delivery system in response to the user request; and
activating the implantable drug delivery system in response to the activation signal.

51. The method of claim 50, wherein activating the implantable drug delivery system comprises dispensing a bolus from the drug delivery system.

52. The method of claim 50, wherein activating the implantable drug delivery system comprises:

20 maintaining an amount of the drug to dispense for each bolus; and
adjusting the amount in response to the user request.

53. The method of claim 50, wherein activating the implantable drug delivery system comprises adjusting a flow rate of the implantable drug delivery system in response to the user request.